

REMARKS

Claims 1-3, 5 and 7 are pending herein.

By this Amendment, claim 1 has been amended to more fully distinguish the invention of the claims over the teachings of Van der Werff cited against the claims. Claim 6 has been canceled.

No new matter is added by this Amendment. Support for the amendment to claim 1 is found in the original specification and the original claims. In particular, support for the language added to claim 1 may be found at page 2, lines 17-19 of the original specification and in original claim 6.

I. Information Disclosure Statement

Applicant thanks the Examiner for the indication that the Information Disclosure Statement (IDS) submitted on May 23, 2001 has been considered.

As acknowledged by the Patent Office, Applicant has met the burden of showing the relevance of the DE 297 13 824 and DE 44 23 194, both of which were originally cited in the May 23, 2001 IDS. However, the Office Action states that the Examiner has no idea what the DE 44 23 194 reference teaches and alleges that no explanation of DE 297 13 824 has been provided on which the Examiner could rely.

Applicant again submits that DE 297 13 824 is discussed in the present specification wherein it is recited that "it is known that cut-resistant articles can be made of aromatic polyamide (polyaramid) fibers. In DE 297 13 824, a protective glove has been described the lining of which comprises flexible aramid fiber." See page 1, lines 8-10 of the specification.

DE 44 23 194 was cited in a counterpart foreign application, and an English language version of the foreign search report was submitted, which search report clearly indicated this reference to be a category X reference. Furthermore, U.S. Patent No. 6,048,486 is a corresponding English-language equivalent of DE 44 23 194. This corresponding U.S. patent

is now provided to the Patent Office for the Examiner's consideration in conjunction with DE 44 23 194.

Obtaining an English-language version of each of these documents, in order to further assist the Examiner, would be an expensive burden on the Applicant and by law is not required. However, if the Examiner requires further information, the Examiner is invited to obtain translated versions of both these documents herself.

II. Rejection Under 35 U.S.C. §103(a)

Claims 1-3 and 5-7 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,882,791 (hereinafter "Van der Werff") in view of U.S. Patent No. 5,578,358 (hereinafter "Foy").¹ This rejection is respectfully traversed.

Claim 1 recites a cut-resistant article comprising aromatic polyamide microfilaments wherein the titer of the microfilaments is equal to or smaller than 1.3 dtex (1.3×10^{-4} g/m) and the microfilaments are in the form of stretch breaking yarn or spun yarn based on staple fiber.

One skilled in the art would not have been motivated to have combined Van der Werff with Foy as suggested by the Patent Office. To arrive at the cut-resistant article of amended claim 1, one skilled in the art would have had to substitute the endless yarn of Van der Werff with a stretch breaking yarn or spun yarn based on staple fiber. Accordingly, after having spun the endless aramide microfilament yarn of Van der Werff, one either would have had to stretch break the endless yarn generating stretch broken yarn pieces or would have had to cut

¹ In the rejection of claims 1-3 and 5-7 under 35 U.S.C. §103(a), the Patent Office alleges that Van der Werff would not explicitly teach the use of aromatic polyamide to be poly (para-phenylene terephthalate). However, Van der Werff discloses that preferably, the polymer is PPTA which can be prepared by the reaction of para-phenylene diamine and terephthalic acid in the copolymerization of which results in poly (para-phenylene terephthalate). See column 3, lines 24-32 of Van der Werff.

the endless yarn, and thus generate staple fiber pieces, without any motivation to do so from the prior art.

Then, one skilled in the art would either have had to manufacture from the stretch broken yarn pieces a stretch breaking yarn (i.e., a yarn comprised of stretch broken yarn pieces), or would have had to produce from the staple fiber pieces a spun yarn based on staple fiber (i.e., a yarn comprised of the staple fiber).

It is well known in the art that endless filaments such as described in Van der Werff are not spun yarn based on a staple fiber or stretch broken yarn pieces. An endless filament yarn comprises a certain number of filaments all of which have the same "endless" length which in practice is the length of the yarn, i.e., on a bobbin. Consequently, cutting the endless filament yarn into a filament yarn piece, i.e., 30 mm in length, as done by Van der Werff, in example 3, results in a piece of yarn in which each of its filaments exhibits the same length, i.e., 30 mm.

Further, to manufacture a spun yarn based on staple fiber, in a first step an endless filament yarn is cut into pieces of a certain length, i.e., the staple fiber. In a second step, the staple fiber is transformed into a spun yarn based on staple fiber by a process similar to the transformation of wool into a wool yarn. This type of yarn spinning inevitably results in a yarn in which staple fiber pieces are entangled to one another side by side (not end to end), wherein the length of the side by side staple fiber entanglement varies statistically. Consequently, cutting the spun yarn, i.e., into a test piece of a certain length, i.e., of 30 mm in length, results in a spun yarn piece in which the staple fiber and its filaments exhibit different lengths.

The same holds for a stretch breaking yarn, with the additional difference that in the first step, the endless filament yarn is not cut but is instead broken by stretching it. The

stretch broken pieces exhibit a length distribution the shape of which depends on the nature of the endless filament yarn and the parameters applied during stretch breaking.

Accordingly, it is clear that Van der Werff fails to teach or suggest a stretch breaking yarn or a spun yarn based on a staple fiber.

Further, nothing in Foy remedies the deficiencies of Van der Werff discussed above. Foy teaches poly (para-phenylene terephthalate) yarns (see column 2, lines 48-50) which are exemplified by KEVLAR® 159, 29 and 129 and SPECTRA® 1000 (see column 6, lines 31-42). One skilled in the art would know that KEVLAR® and SPECTRA® represent endless filament aramid and polyethylene yarns, respectively.

Finally, with the intention to evaluate the cut-resistance, one skilled in the art would have had to manufacture an article either from the stretch breaking yarn or from the spun yarn based on staple fiber and to measure the cut-resistance of the resulting articles.

None of the aforementioned features are disclosed or rendered obvious by Van der Werff and/or Foy. Instead, Van der Werff teaches the suitability of their yarns in ballistic applications (see column 2, lines 37-41) and for cords (see column 8, lines 14-16) and Foy teaches that their articles are stab-resistant (see column 2, first paragraph).

Accordingly, neither Van der Werff nor Foy would have motivated one skilled in the art to evaluate the cut-resistance of an article made from their yarns. Further, even if one would somehow have combine the references, as alleged by the Patent Office, the presently claimed invention still would not have been achieved.

Van der Werff consistently discloses filament yarns which, as one skilled in the art knows, are yarns which comprise a bundle of endless filament yarns (see column 3, lines 34-37). The Patent Office acknowledges this fact in the Office Action (see page 4, section 7, lines 9-11 of the Office Action). These endless filaments are distinct from stretch breaking yarns and spun yarns based on staple fiber as discussed above.

The Patent Office alleges that in example 3 of Van der Werff, the 30 mm test filament yarn falls under the definition of a staple fiber (see page 4, section 7, lines 11-13 of the Office Action). Contrary to this assertion, Van der Werff does not disclose a filament yarn, but merely "a filament" (see column 10, lines 11-13), i.e., a single filament of 30 mm in length which is used to perform the flattening test with "a filament" (see example 3, first sentence). It is clear from Van der Werff that in order to perform the flattening test (see column 3, lines 82-column 4, line 1) to register the force-compression curve, it is quite obvious that a reliable registration of the curve needs to use a single filament. In the context of Van der Werff, there cannot be any doubt that the 30 mm test filament is taken from an endless filament yarn and not from stretch breaking yarn or from a spun yarn based on a staple fiber.

In other words, nowhere do Van der Werff and Foy, alone or in combination, teach or suggest a cut-resistant article comprising aromatic polyamide microfilaments wherein the titer of the microfilaments is equal to or smaller than 1.3 dtex (1.3×10^{-4} g/m) and the microfilaments are in a form of stretch breaking yarn or spun yarn based on staple fiber, as recited in claim 1.

For the forgoing reasons, Applicant submits that Van der Werff and Foy, either alone, or in combination, fail to teach or suggest the subject matter of claims 1-3, 5 and 7. Reconsideration and withdrawal of the rejection are thus respectfully requested.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-3, 5 and 7 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



William P. Berridge
Registration No. 30,024

Linda M. Saltiel
Registration No. 51,122

WPB:LMS/mlv

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OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

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